

## Biology Genetics

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

1. Using a Punnet square and the following information, find the probability of having a child with a round face.

The mother has a round face and a genetic makeup of Rr.

The father has a square face and is pure recessive, so his genetic makeup is rr.

- A. 25%
- B. 50%
- C. 75%
- D. 100%

2. What is the probability that an offspring will have the genotype of DD for a trait if the mother's genotype is Dd and the father's genotype is dd?

- A. 25 %
- B. 75 %
- C. 50 %
- D. 0 %

3. In a particular type of fish, the gene for grey fins is dominant over the gene for pink-tipped fins. Use the Punnet square below to answer the question.

|   |    |    |
|---|----|----|
|   | G  | G  |
| g | Gg | Gg |
| g | Gg | Gg |

What is the probability that an offspring will have pink-tipped fins?

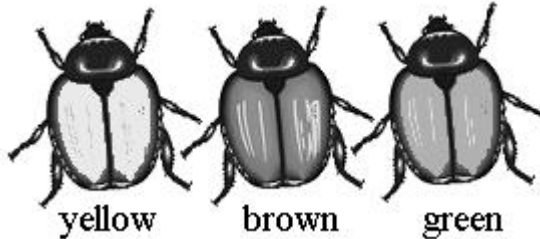
- A. 100 %
- B. 0 %
- C. 50 %
- D. 75 %

4. What is the probability of an offspring having the genotype PP, if one parent has the genotype PP and the other has the genotype Pp?

- A. 100%
- B. 25%
- C. 0%
- D. 50%

5. What is the probability that an offspring will express the recessive trait if the parent's genotypes are both Tt?
- A. 100%
  - B. 50%
  - C. 0%
  - D. 25%

6.

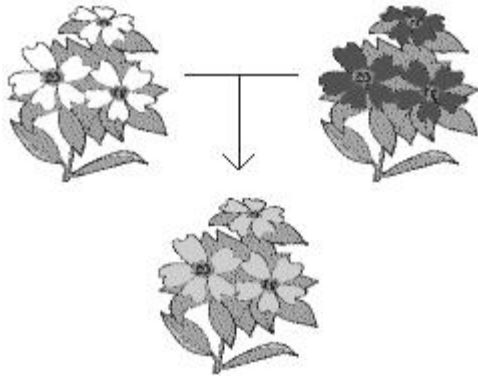


In a certain species of beetle, the allele for green wings is represented as "G" and the allele for brown wings is represented as "g". The hybrid (heterozygous) condition results in yellow wings. What is the probability of offspring with green wings resulting from a cross between two yellow winged beetles?

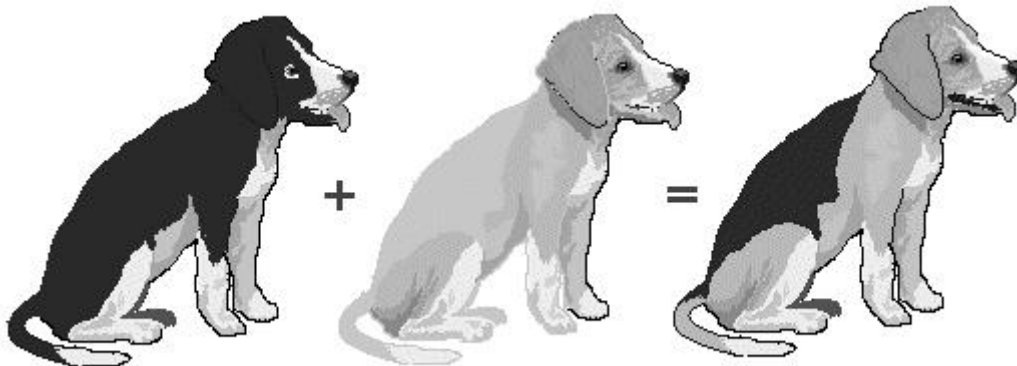
- A. 1/2 or 50%
  - B. 3/4 or 75%
  - C. 4/4 or 100%
  - D. 1/4 or 25%
7. Fill in the blank.
- In blood types, both alleles are fully expressed and show no dominance over each other. This is an example of \_\_\_\_\_.
- A. incomplete dominance
  - B. sex-linkage
  - C. a mutation
  - D. co-dominance
8. Incomplete dominance will cause which of the following?
- A. a genetic disorder
  - B. a mutation
  - C. a mixture of two traits
  - D. a recessive trait to be dominant
9. Why is a male more likely than a female to be color blind?
- A. because color blindness is a recessive trait carried on the X chromosome
  - B. because color blindness is a dominant trait carried on the X chromosome
  - C. because color blindness is a co-dominant trait in males
  - D. because the eye structure of males is more susceptible to color blindness

10. What are **polygenic traits**?
- A. traits that are controlled by interactions between multiple genes
  - B. traits that occur more than once in an organism's DNA
  - C. trait that are located on the same chromosome, so they will be inherited together
  - D. traits that are always fully expressed in the phenotype

11. What type of condition is expressed when two flowering plants produce offspring as shown below?



- A. incomplete dominance
  - B. co-dominance
  - C. sex-linkage
  - D. polygenics
12. What type of inheritance most likely influenced the phenotypic expression in dog coat color illustrated below?



- A. recessive inheritance
- B. nondisjunction
- C. co-dominance
- D. sex-linkage